

'Moving Washington'

Capacity, Efficiency, Demand

WSDOT's three-part strategy to relieve congestion

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January 31, 2008



**Washington State
Department of Transportation**

We're doing a lot right now...

Three-part strategy to address congestion:

- Adding capacity strategically
- Operating roadways efficiently
- Managing demand



The Big Picture

*The Legislature's
State Transportation Policy Goals:*

- Preservation
- Safety
- Mobility
- Reliability
- Stewardship





Adding Capacity Strategically

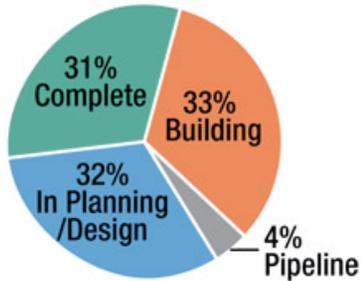
Building is part of the solution

Project Delivery

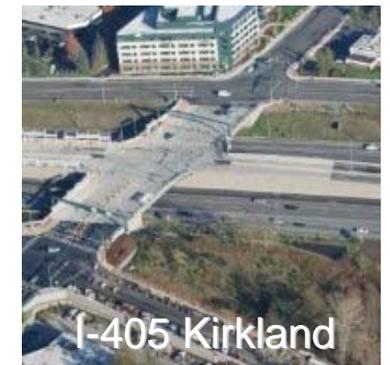
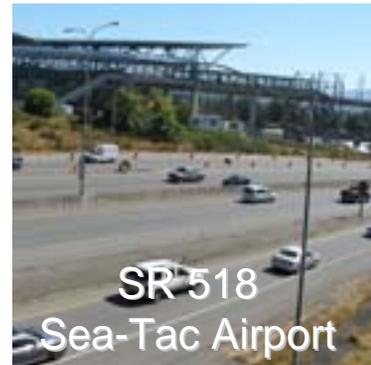
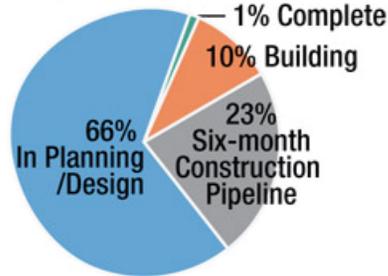
The Nickel and TPA plans include 392 projects targeting safety, preservation and congestion relief.



2003 Nickel



2005 TPA





Operating Efficiently

Getting the most out of the infrastructure we have

- **Intelligent Transportation Systems (ITS):**

135 ramp meters, real-time traveler information, 475 traffic cameras, 179 variable message boards, 7 traffic management centers.

- **Incident Response Teams:**

55 trucks responded to 52,877 incidents in 2007. Average clearing time dropped from 33 minutes in 2001 to 16 minutes in 2007.

- **Signal Timing:**

Signal optimization program monitors and adjusts 884 traffic signals to save drivers thousands of hours in yearly traffic delay.

- **High occupancy vehicle (HOV) lanes:**

200 miles of planned 300-mile HOV system complete.

- **High occupancy toll (HOT) lanes:**

Making HOV lanes more efficient.





Managing Demand

Providing people choices

As the urban areas grow, so does demand and corresponding congestion. WSDOT works with multiple modes to manage demand.

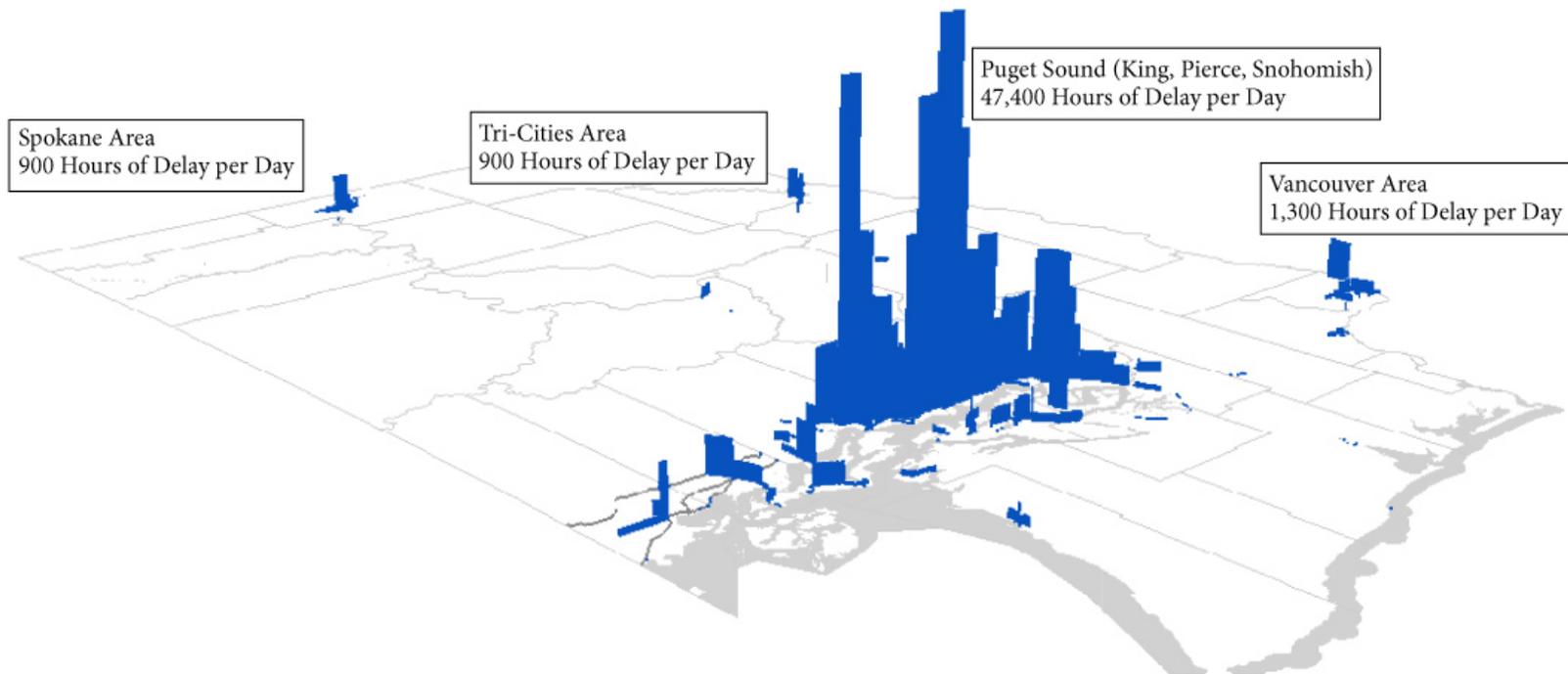
- **Commuter Trip Reduction:** More than 1,100 worksites now participate in the program, reducing delay by 19%.
- **Transit options:** bus, light rail, commuter rail, providing 180 million transit trips annually.
- **Vanpools:** The largest vanpool program in the nation has increased 40% since 2003 with more than 2,200 vanpools and nearly 18,000 riders daily.
- **Planning with Cities and Towns:** Careful Land-use actions under the Growth Management Act connect transportation with development.
- **Park and Ride:** 300 lots statewide with more than 43,000 parking stalls
- **Bike lanes and pedestrian access**



There's a lot more to be done...

Highway Congestion

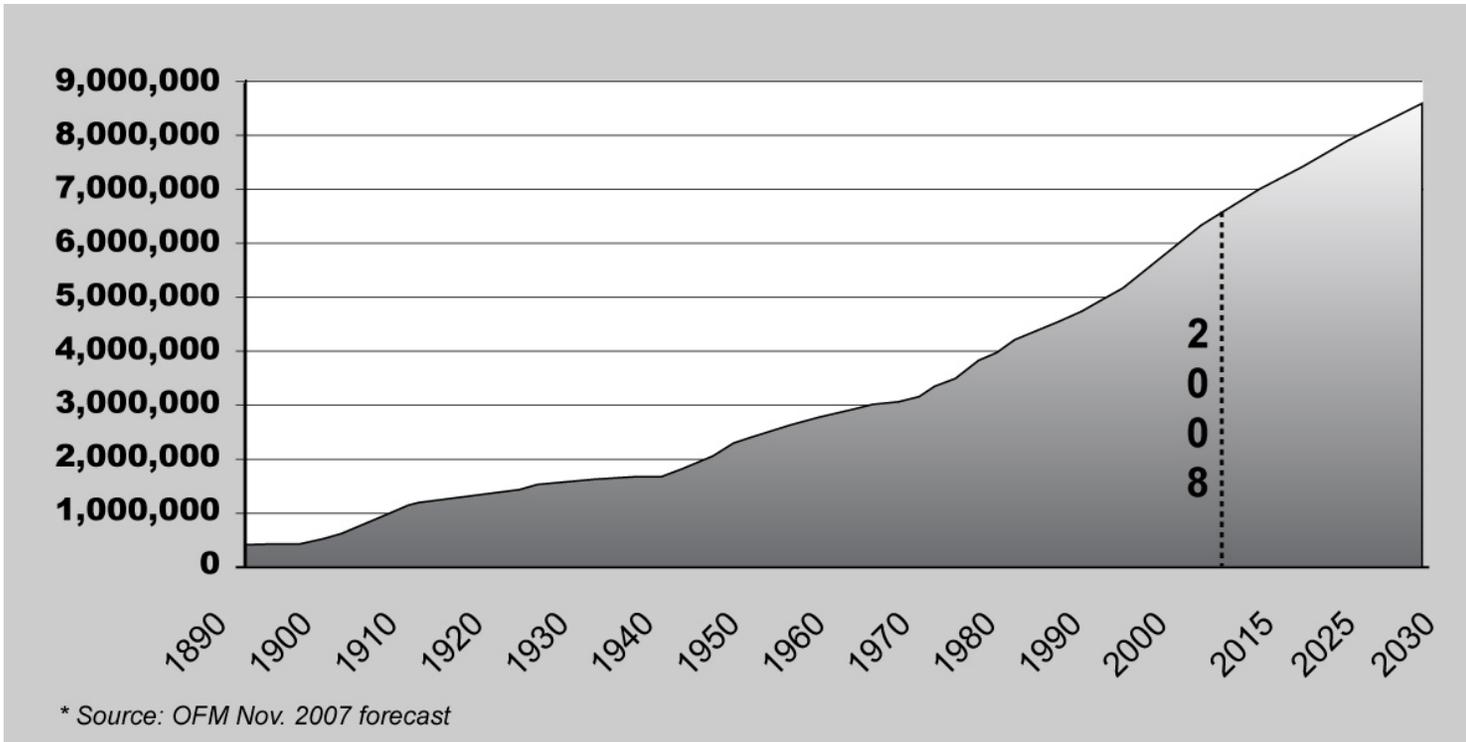
Vehicle Hours of Delay per Day per Mile in Washington State



- 370,000 vehicle hours (520,000 person hours) daily delay (2004)
- Chiefly affecting urban areas and especially the Puget Sound region

Washington State Population Growth*

Demand is increasing rapidly

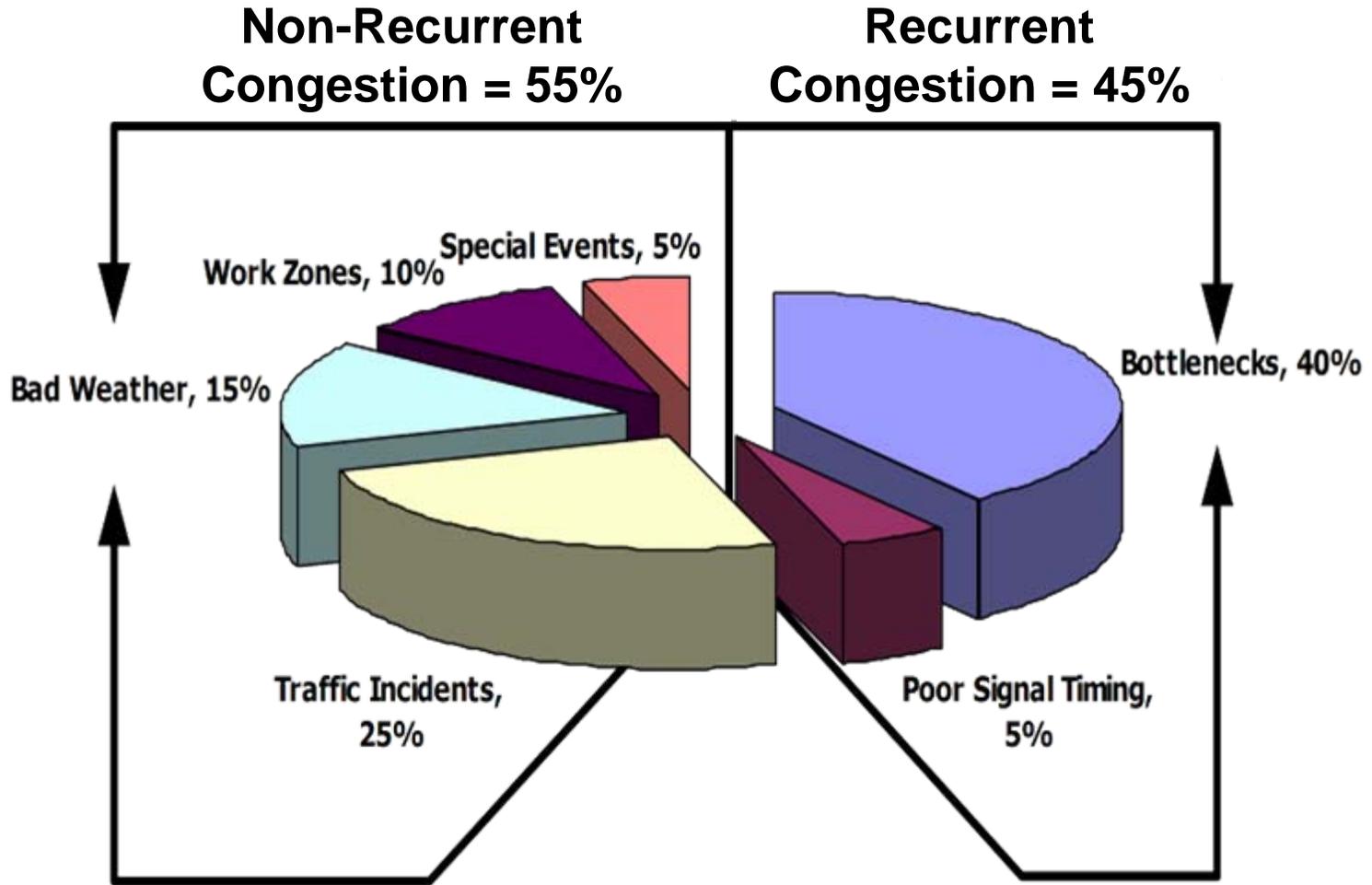


2 million more people
expected by 2030



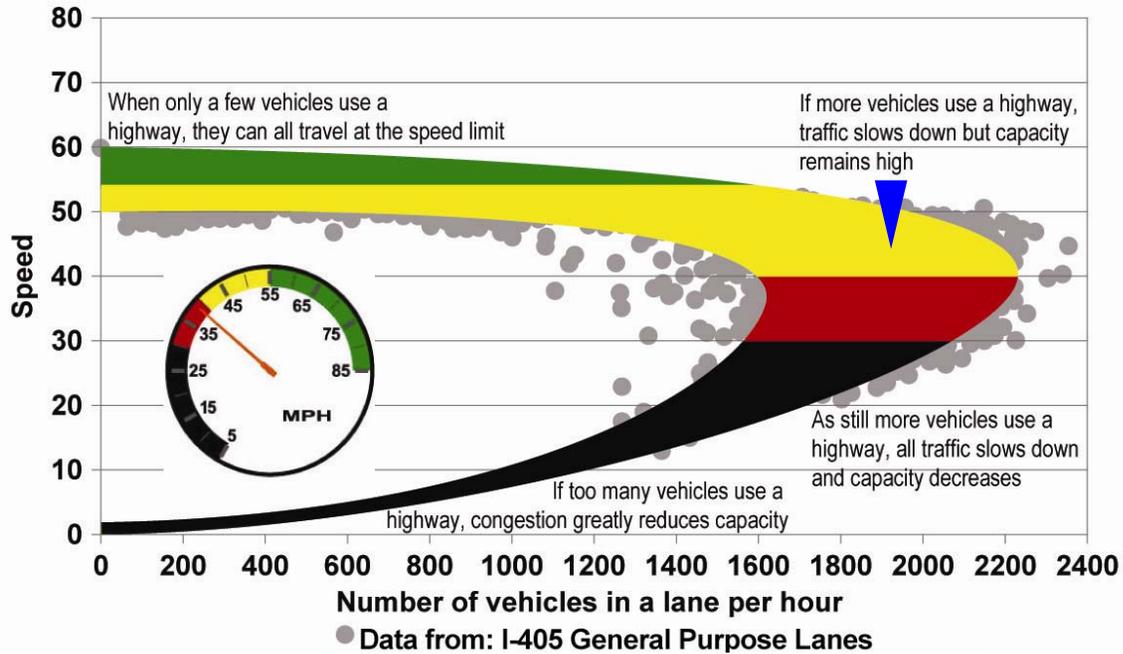
Causes of Congestion

It's more than bottlenecks

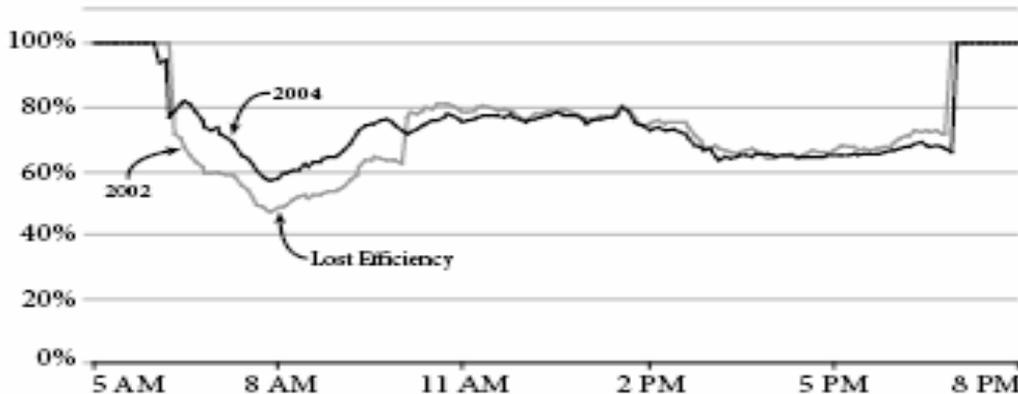


Maximizing Throughput

Making lanes more efficient



I-405 at SR 169 in Renton



Lost Productivity
Despite increased demand during rush-hour congestion, fewer vehicles move through each lane.

Each corridor requires balanced solutions...

Major Corridor Strategies



Central Puget Sound



Spokane

Vancouver



Eastside Corridor



Strategically Added Capacity

- I-405 Chokepoints Bothell, Kirkland, Bellevue, Renton, Tukwila
- SR 167 HOV Auburn
- Sound Transit HOV Direct Access Ramps



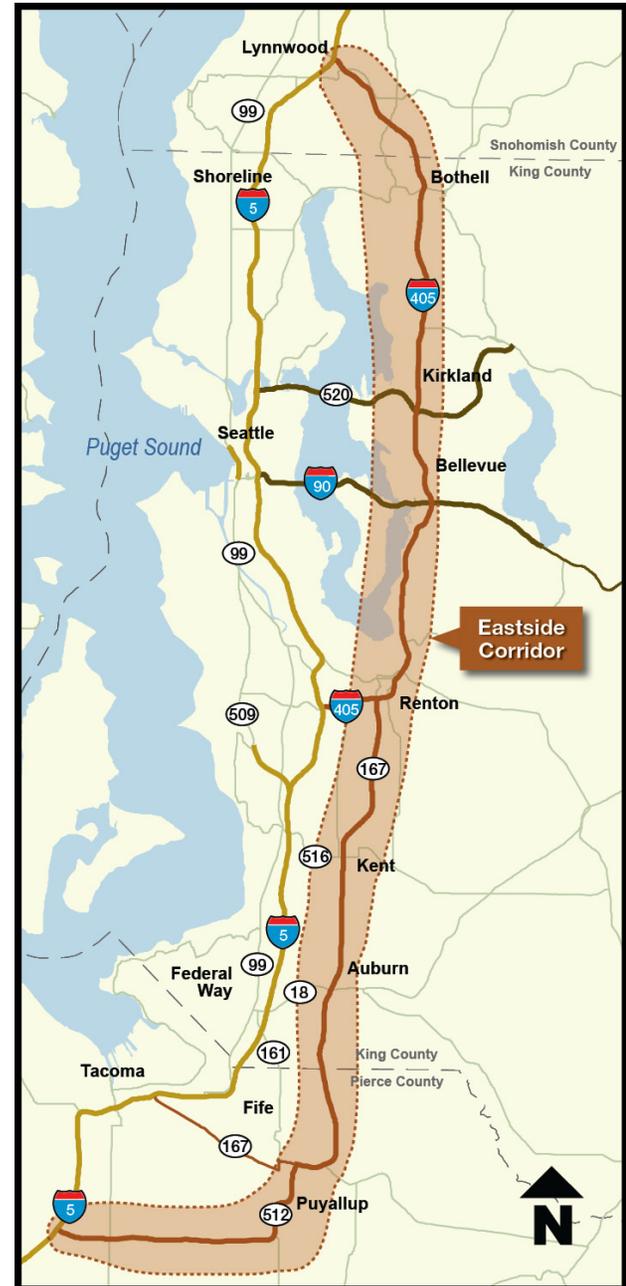
Operate Efficiently

- Ramp Metering / ITS
- Incident Response Teams
- SR 167 HOT Lane Pilot
- I-405 variable toll lanes concept



Manage Demand

- Commute Trip Reduction
- Vanpools
- Express Bus/Bus Rapid Transit
- Sound Transit's Sounder



I-405 Long Range Improvements

Regional Consensus

- EIS Record of Decision in 2002
- Master Plan adopted out to 2030

Roadways

- 2 new lanes in each direction
- Local arterial improvements

Transit & Transportation Choices

- Bus Rapid Transit system
- 9 new transit centers added
- 50% transit service increase
- HOV direct access ramps and flyer stops
- 5,000 new Park & Ride spaces
- 1,700 new vanpools

Environmental Enhancements

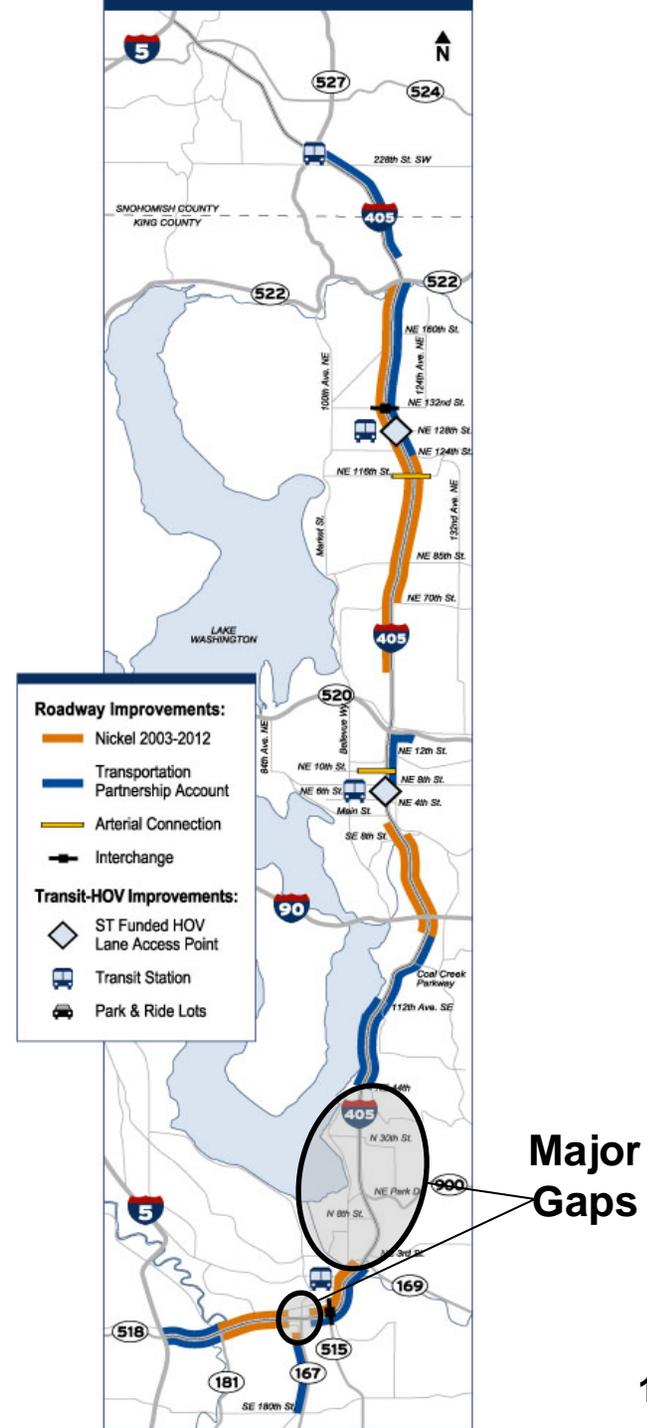
- Early environmental mitigation & wetland mitigation banks



I-405 Funded Chokepoint Projects

2003 Nickel 2005 TPA

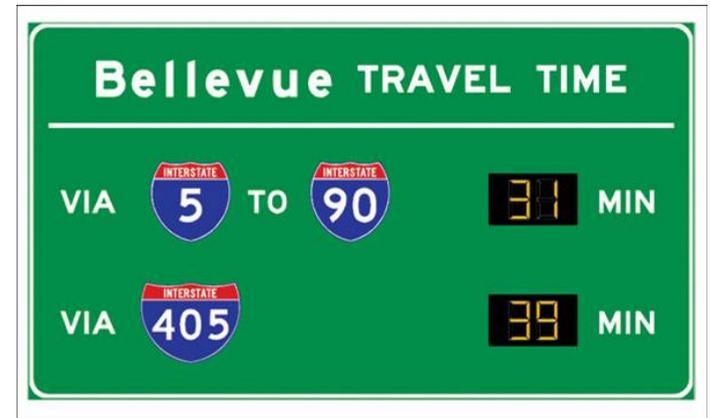
	(x \$1 million)
SR 520 to I-5	
NB 195th St. to SR 527	\$45
Kirkland Nickel Stage 2	\$86
NE 124th St. to SR 522	\$170
NE 132nd St. Bridge	\$30
NE 132nd St. Interchange Ramps	\$30
Kirkland Nickel Stage 1	\$78
NB NE 8th St. to SR 520- Braided Crossing	\$250
NE 10th St. Bridge Crossing	\$67
112th Ave. SE to SE 8th St.	
Bellevue Nickel Project	\$185
112th Ave. SE to I-90	\$20
NE 44th St. to 112th Ave. SE	\$150
I-5 to SR 169	
Renton Nickel Project	\$136
I-5 to SR 181	\$30
NB SR 167 to SR 169	\$20
SR 167 SB: I-405 to SE 180th St.	\$50
SR 515 Interchange	\$110
Totals:	
Nickel 2003-2012	\$485
TPA 2005	\$972
I-405 Corridor Total State Investment	\$1,457



Sustaining Added Capacity

*Technology keeps traffic moving
into the future*

- Existing tools, such as ramp meters, traffic loops, and changeable message signs help manage traffic flow and demand.
- Electronic tolling with *Good To Go!* keeps traffic moving and could be used for I-405 variable toll lanes.
- Advanced technologies proven in other parts of the world can improve trip reliability and reduce collisions.



Westside Corridor



Strategically Added Capacity

- I-5 HOV Lanes in Everett, Federal Way, Tacoma
- I-5 Shoreline auxiliary lane
- I-5 reconstruction projects
- SR 519 Phase II
- Alaskan Way Viaduct collaboration
- SR 518 third lane from Sea-Tac Airport
- I-5/SR 518/SR 161 interchange improvements



Operate Efficiently

- Ramp Metering / ITS
- Incident Response Teams
- Active Traffic Management



Manage Demand

- Commute Trip Reduction
- Vanpools
- Express Bus
- Sound Transit's Link
- Sound Transit's Sounder



I-5 Pavement Reconstruction Projects

Boeing Access to Northgate

- **Preserve existing pavements**

A series of projects will remove and replace the original deteriorating concrete.



- **Reduce congestion and improve safety by strategically improving chokepoints**

I-5 is a series of long standing bottlenecks caused by lanes that disappear, closely spaced ramps and high volumes.



40+ Year Old Pavement Conditions

The worst of the worst pavement is located between Northgate and NE 175th



Possible Operational Improvements

- **Near Term** (2008-2012)

Interchange and arterial signal coordination with the ability to remotely change signal timing to response to traffic conditions. Install Active Traffic Management technologies on I-5.

- **Mid Term** (2012-2014)

Transit-only peak period shoulder northbound Olive Way to SR 520 provides reliable travel speed for transit.

- **Long Term** (2014-2018)

Braid Spokane Street northbound on-ramp with I-5 collector-distributor lane.



Active Traffic Management

New Technologies on the Horizon

- **Build off current ITS**

Active traffic management is the next generation of intelligent transportation system

- **Overhead gantries**

Variable speed limit and lane-control signs over each lane with message signs

- **Speed harmonization**

Maintain flow and reduce collision risk

- **Hard shoulder running**

Shoulders open as a travel lane during peak-hour traffic

- **Emergency refuge pull offs**

Keep traffic moving during stalls and collisions

- **Variable lane control**

Signals divert traffic away from trouble spots and improve emergency vehicle access

- **Travel time signs**

Allow for better reroute decisions by travelers



M42 Birmingham, England



Gantry concept for WSDOT

Cross Lake Corridor



Strategically Added Capacity

- SR 520 Bridge Replacement
- I-90 R8A HOV Lane



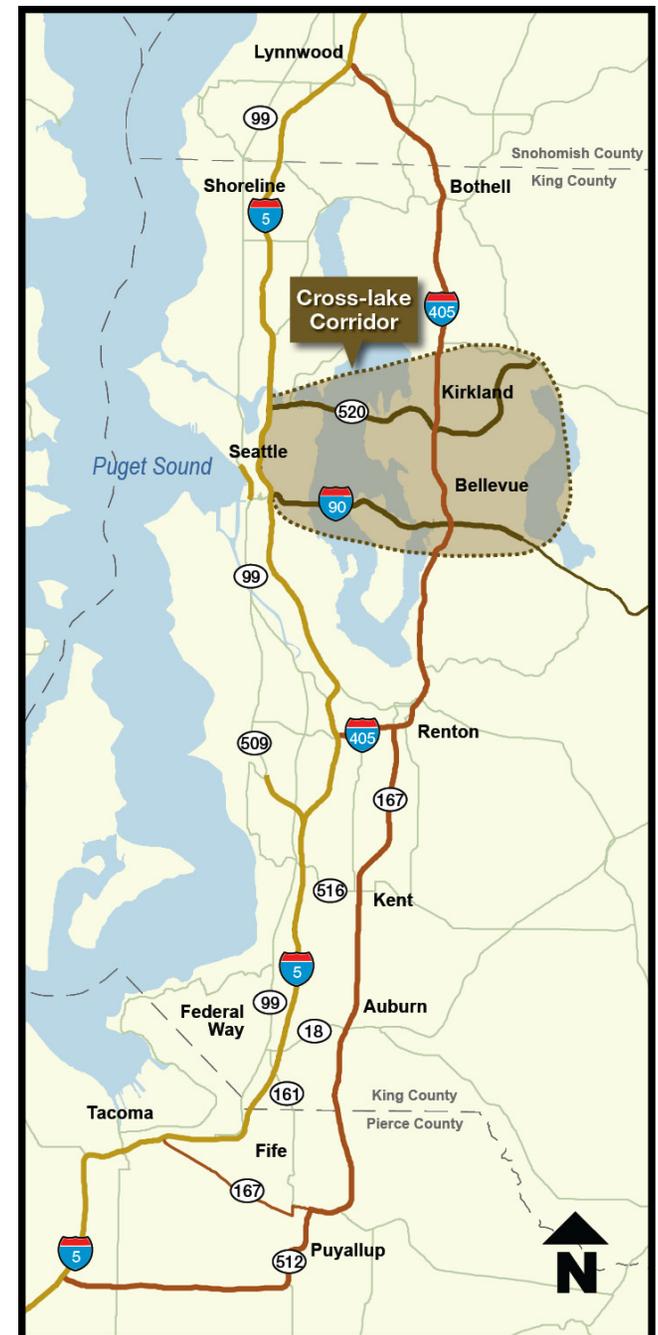
Operate Efficiently

- Ramp Metering / ITS
- Incident Response Teams
- Active Traffic Management



Manage Demand

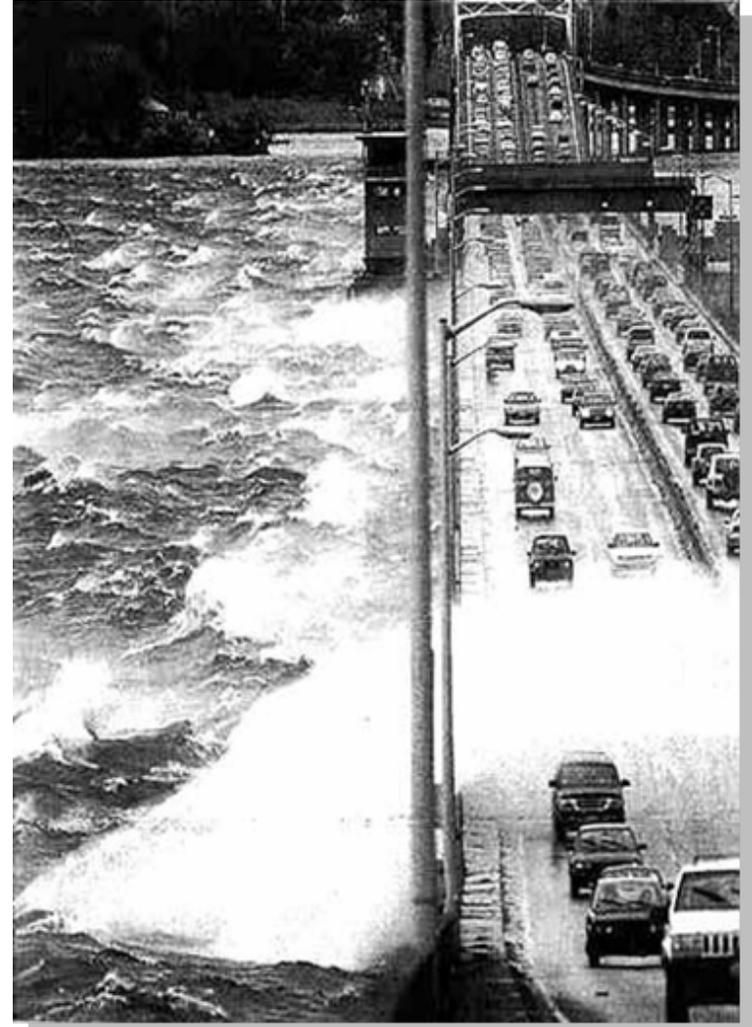
- Commute Trip Reduction
- Vanpools
- Express Bus/Bus Rapid Transit
- Sound Transit Link station at UW
- Accommodate potential high capacity transit cross-lake
- SR 520 Urban Partnership Agreement - tolling, technology, transit, and telecommuting



The SR 520 Corridor

The SR 520 Bridges – Evergreen Point and Portage Bay

- Are vulnerable to collapse during a windstorm or major earthquake
- Carry about 115,000 vehicles (and 150,000 people) per day - almost double what they were designed for
- Suffer heavy congestion which robs the corridor of nearly 40% of its capacity
- Financial and environmental constraints limit the number of lanes that can be added to the existing corridor



The Lake Washington Urban Partnership



- Part of USDOT initiative to reduce congestion in five geographic regions across the country through implementing the “Four T’s”
 - Seattle/King County area
 - San Francisco
 - Minneapolis
 - Miami
 - New York City

- The “Four T’s”
 - Tolling
 - Technology and Traffic Management
 - Transit
 - Telecommuting

- WSDOT, PSRC and King County are partnering to implement comprehensive congestion reduction strategies

Objectives for Tolling

Tolling offers potential benefits to keep traffic and the economy moving

- **Revenue generation –**
New Tacoma Narrows Bridge
To help build projects

- **Congestion management –**
SR 167 HOT Lanes Pilot Project
 - Optimize vehicle throughput
 - Move optional trips out of peak hours
 - Encourage shift to transit or carpools

- **Mixed approach –**
SR 520 concept
Raise funds and improve throughput

- **Environmental improvements**
Reduce greenhouse gases



Spokane Area Corridors

I-90 Corridor; US 395/US 2 Corridor



Strategic Capacity

- Sullivan Road to Idaho State Line
- Argonne Road to Sullivan Road
- Harvard Road/I-90 Off-Ramp
- Francis Ave. to US 2
- I-90 North Access Connection
- Collector Distributor System



Operate Efficiently

- US 195 – ITS
- Incident Response Teams



Manage Demand

- Commute Trip Reduction
- Vanpools
- Harvard Road Pedestrian crossing



Vancouver Area Corridors

*I-5 Corridor; I-205 Corridor;
SR 500/SR 14 Corridor*

Strategically Adding Capacity

- I-5 Bridge Columbia River Crossing
- I-5/N.E. 134th interchange
- I-5/N.E. 112th Interchange
- SR 500/St. Johns interchange

Operate Efficiently

- Incident Response Team
- Traveler information signs
- Traffic Cameras
- Signal Timing
- Traffic sensors

Manage Demand

- Commute Trip Reduction
- Express bus



I-5 Bridge, Columbia River Crossing

A bridge, transit and highway improvement project

Congestion Issue

- Currently experiences 4-6 hours of congestion daily; by 2030, there will be 15 hours of congestion if no action is taken.
- Marine traffic requires bridge lifts; it is the only interstate drawbridge in the county

Strategic Capacity

- Add lanes and widen shoulders
- Includes six interchanges – 4 in Washington, 2 in Oregon
- Transit and bike/ped. options included

Operate Efficiently

- Bridge tolling likely
- Includes adequate shoulders for disabled vehicles or collisions, essential for keeping travel lanes clear

Manage Demand

- Variable tolling being considered
- Traffic cameras, traffic sensors
- Signal timing



One of five alternatives currently being considered

What's Next?

- Feb. 2008: Draft EIS on Five Alternatives, including a Draft Locally Preferred Alternative
- 2010: Earliest construction



Moving Washington

✓ **Congestion is a priority:** Preservation, Safety, Mobility, Reliability and Stewardship are policy goals for Washington State. The success of WSDOT's congestion relief strategy depends on meeting each of the goals.

✓ **Delivering on our commitment:** WSDOT is delivering crucial transportation projects. With a clear road map for the future, we can meet growing travel demands.

✓ **New tools, new challenges:** WSDOT is studying transportation innovations around the world and working to implement technologies such as active traffic management to ease congestion today and sustain added capacity into the future.

